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WATER SUPPLY OUTLOOK
and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS
for
MONTANA & NORTHERN WYOMING

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE.
and
MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with the Bureau of Reclamation, U.S. Forest Service, U.S. Geological Survey, National Park Service, State Engineers of Montana and Wyoming and other Federal, State, and private organizations.

AS OF
FEB. 1, 1962

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Cooperative Snow Survey and Water Supply Forecast Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Fortunately, most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from fore-knowledge of the runoff.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, about 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

By relating snow survey measurements taken over a period of years to spring-summer runoff during the same period, relationships have been developed which make it possible to forecast seasonal runoff several months in advance of occurrence. In order to make a forecast, once a forecast relationship has been developed, the maximum snow water content at previously selected key snow courses is usually entered in the forecast relationship. More accurate forecasts are often obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast relationships.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions.

PUBLISHED BY SOIL CONSERVATION SERVICE

REPORTS	ISSUED	LOCATION	COOPERATING WITH
RIVER BASINS			
COLORADO AND STATE OF UTAH	MONTHLY (JAN.-JUNE)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER AND OTHER AGENCIES
COLUMBIA	MONTHLY (JAN.-MAY)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
UPPER MISSOURI AND STATE OF MONTANA	MONTHLY (FEB.-JUNE)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
WEST-WIDE	OCT. 1, APR. 1, MAY 1	PORTLAND, OREGON	ALL COOPERATORS
STATES			
ALASKA	MONTHLY (MAR.-MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN.15 - APR.1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. AGR. EXP. STATION COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (FEB.-MAY)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
NEVADA	MONTHLY (JAN.-MAY)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-JUNE)	PORTLAND, OREGON	ORE. AGR. EXP. STATION OREGON STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-JUNE)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

Copies of these various reports may be secured from:

Head, Water Supply Forecasting Section
Soil Conservation Service
P.O. Box 4170, Portland 8, Oregon

PUBLISHED BY OTHER AGENCIES

REPORTS	ISSUED	AGENCY
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	COMPTROLLER, WATER RIGHTS BR., DEPT. OF LANDS AND FORESTS, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIF. DEPT. OF WATER RESOURCES, SACRAMENTO, CALIF.

FEDERAL-STATE-PRIVATE COOPERATIVE

SNOW SURVEYS AND WATER SUPPLY FORECASTS

for

MONTANA AND NORTHERN WYOMING
(Upper Missouri and Upper Columbia River Basins)

Report Prepared
By

A. R. Codd
Snow Survey Supervisor

and

P. E. Farnes
Ass't. Snow Survey Supervisor

Soil Conservation Service
Snow Survey Section
Box 855, Bozeman, Montana

Issued By

H. D. Hurd
State Conservationist
Soil Conservation Service
Bozeman, Montana

R. E. Huffman
Director
Montana Agricultural
Experiment Station
Bozeman, Montana

MONTANA
WATER SUPPLY OUTLOOK
as of
February 1, 1962

*
* The water supply outlook for the coming *
* irrigation season is much better than *
* last year and is near to slightly above *
* the 15-year average. *
* *

The present snowpack on the headwaters of the Yellowstone, Madison and Jefferson rivers is almost twice that of last February 1 and 15 to 20 percent above the 1943-57 average. In the Gallatin drainage, the snowpack is 90 percent greater than on February 1 last year and 140 percent of the 15-year average.

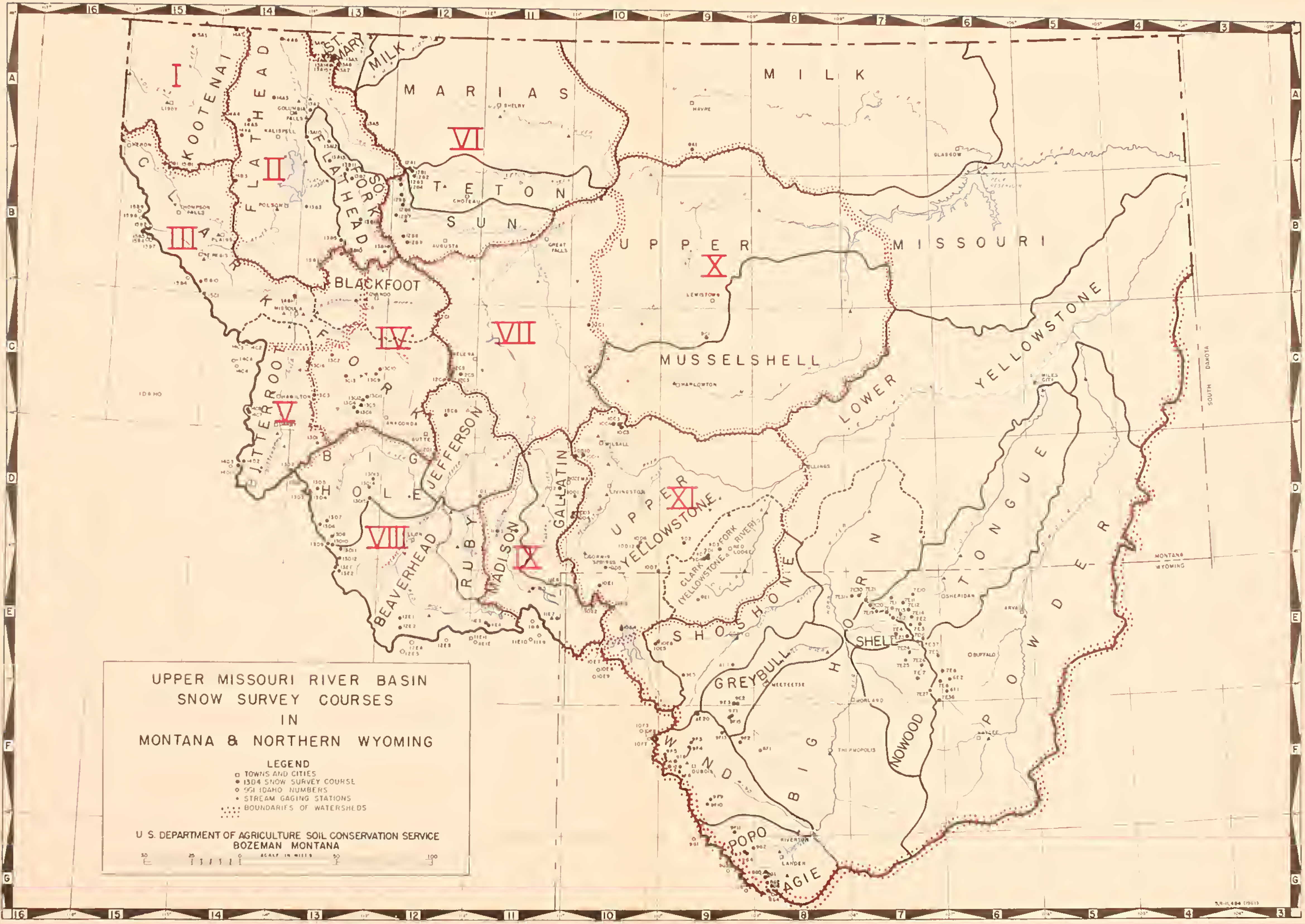
Two snow courses measured in the Bitterroot drainage are 40 percent above last year and 5 percent below average.

The snowpack on headwaters of the Flathead and Clark Fork drainage is 70 to 80 percent greater than last year and 15 to 20 percent above average.

The Kootenai drainage in Canada has a snowpack almost equal to last year's and is very near average.

Soil moisture is above average in the southern portion of the state with other areas near to slightly above average. One exception is the headwaters of the Clark Fork river above Missoula, where soils underlying the snowpack are generally dry.

Storage in irrigation reservoirs is generally below average; however, prospects for reservoirs to fill during the spring runoff are good.



UPPER MISSOURI RIVER BASIN SNOW SURVEY COURSES IN MONTANA & NORTHERN WYOMING

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE
BOZEMAN MONTANA

INDEX TO MONTANA & NORTHERN WYOMING SNOW COURSES

COLUMBIA RIVER BASIN

Drainage Basin & Course Name	Number	Elev.	Location Sec. Lat.	Twp.	Range Long.	Record Began	Measuring Dates	Meas. By
KOOTENAI RIVER								
Baree Creek	15B11	5500	6	25N	30W	1937	4,5,5½	2
Brush Creek	[illegible]	5000	13	33N	28W	1937	3,4,5	1
Red Mountain	[illegible]	6000	[illegible]	36N	29W	1937	3,4,5,5½	1
Weasel Divide	[illegible]	5450	8	37N	[illegible]	1937	3,4,5,5½	1
FLATHEAD RIVER								
Basin Creek	13B14	5000	11	19N	27W	1951	2,3,4,5	1
Bassoo Peak	[illegible]	5150	11	[illegible]	25W	1956	3,4,5	1,5
Big Creek	13A3	6750	[illegible]	22N	18W	1941	3,4,5	1,5
Desert Mountain	[illegible]	5600	24	31N	19W	1937	1,2,3,4,5	6,2
Griffin Creek Divide	[illegible]	5150	11	28N	25W	1950	3,4,5	1,5
Hell Roaring Divide	[illegible]	5770	34	33N	22W	1942	3,4,5	1
Holbrook	13B13	4530	25	21N	13W	1951	2,3,4,5	1
Kishenehn	[illegible]	3886	14	37N	22W	1955	3,4	6
Logan Creek	[illegible]	4300	34	30N	24W	1937	3,4,5	1
Marias Pass	[illegible]	5250	34	30N	13W	1936	1,2,3,4,5	3
Mineral Creek	13A16	4000	30	35N	17W	1950	3,4	6
North Fork Jocko	[illegible]	6330	3	17N	17W	1941	[illegible]	6,1
[illegible]	13A13	3800	11	26N	17W	1951	4	1,2
Spotted Bear Mt.	13A2	7000	13	25N	15W	1948	1,2,3,4,5	1,2
Strawberry Lake	13A10	6500	11	28N	19W	1948	3,4,5	2
Trinkus Lake	13A1	6500	9	25N	17W	1948	3,4,5	2
Trout Lake	13A12	3600	21	29N	17W	1948	1,2,3,4,5	1,2
Twin Creeks	13B11	3580	14	26N	16W	1951	3,4,5	1,2
Upper Holland Lake	13B5	7000	23	20N	15W	1948	3,4,5	2
CLARK FORK RIVER								
Black Pine	13C13	7100	23	8N	15W	1959	3,4	1
Coyote Hill	13C10	4200	12	18N	16W	1947	1,2,3,4,5	1,2
El Dorado Mine	13C9	7800	23	6N	12W	1949	3,4	1
Fred Burr Pass	13C11	8000	12	6N	13W	1957	3,4	1
Freezeout Pass	[illegible]	6800	21	15N	27W	1937	4,5	1,2
Gold Creek Lake	[illegible]	7200	24	8N	12W	1949	3,4	1
Hoodoo Creek	15C1	6200	[illegible]	12N	27W	1937	4,5	1,2
Intergaard	[illegible]	6450	6	5N	13W	1938	2,3,4	4
Lubrecht Forest #[illegible]	[illegible]	[illegible]	11	13N	16W	1951	1,2,3,4,5	8
Red Lion	13C12	7000	27	6N	13W	1958	3,4	1
Skalkaho Summit	13C3	7250	30	6N	17W	1937	3,4	1
Slide Rock Mt.	13C2	7100	35	10N	16W	1937	3,4	1
Southern Cross	13C5	6500	8	5N	13W	1936	2,3,4	4
Storm Lake	13C7	7780	19	4N	13W	1939	1,2,3,4,5	1
Stuart Mill	13C6	6500	19	5N	13W	1936	2,3,4	4
T.V. Mountain	[illegible]	6800	33	15N	19W	1956	1,2,3,4,5	1
BITTERROOT RIVER								
Ambrose	13C16	6475	28	9N	18W	1960	3,4,5	1
East Fork R.S.	13D1	5400	16	2N	17W	1937	3,4	1
Gibbons Pass	13D2	7100	4	2S	19W	1936	1,2,3,4,5	1,3
Lolo Pass	15C5	5230	11	10N	[illegible]	1937	3,4,5	1,2
Lost Horse	[illegible]	5900	5	4N	23W	1960	3,4,5	1
Nez Perce Camp	[illegible]	5580	19	1S	23W	1937	3,4,5	1
Nez Perce Pass	[illegible]	6575	29	1S	[illegible]	1937	3,4,5	1
Twin Lakes	[illegible]	6510	32	5N	23W	1960	3,4,5	1

SASKATCHEWAN RIVER BASIN

Drainage Basin & Course Name	Number	Elev.	Location Sec. Lat.	Twp.	Range Long.	Record Began	Measuring Dates	Meas. By
ST. MARY								
Iceberg Lake #3	13A3	5600	34	36N	16W	1922	5	3,9
Josephine Lower #[illegible]	[illegible]	[illegible]	10	35N	16W	1955	5	3,9
Mount Allen #[illegible]	13A7	5700	22	35N	16W	1922	5	3,9
Piegan Pass #[illegible]	13A6	5550	15	35N	16W	1922	5	3,9
Ptarmigan #2	13A8	5800	32	36N	16W	1937	5	3,9

MISSOURI RIVER BASIN

Drainage Basin & Course Name	Number	Elev.	Location Sec. Lat.	Twp.	Range Long.	Record Began	Measuring Dates	Meas. By
BEAVERHEAD RIVER								
Bloody Dick	13D10	7600	12	8S	16W	1949	3,4	1
Gold Stone	13D9	8100	11	8S	16W	1949	3,4	1
Lakeview Canyon	11E4	6930	26	14S	2W	1948	3,4,5	10
Lakeview Ridge	11E3	7400	27	14S	2W	1948	3,4,5	10
Lemhi Pass	13E1	7480	9	10S	15W	1949	3,4	1
[illegible]	13E2	6950	5	15S	9W	1949	3,4	1
Selway Junction	13D11	6800	27	8S	17W	1948	3,4	1
Terrell Creek	13D12	6650	14	9S	17W	1948	3,4	1
Trail Creek	[illegible]	[illegible]	15	10S	17W	1948	3,4	1
White Pine Ridge	[illegible]	6850	18	14S	9W	1948	3,4	1
BIG HOLE RIVER								
Anderson Meadow	[illegible]	[illegible]	18	[illegible]	14W	1948	3,4	1
Below Big Hole Pass	[illegible]	[illegible]	[illegible]	[illegible]	18W	1948	3,4	1
Big Hole Pass	13D3	[illegible]	28	[illegible]	18W	1948	3,4	1
East Boundary	13D5	6700	22	3S	17W	1949	3,4	1
Elk Horn Springs	13D15	[illegible]	15	[illegible]	17W	1955	3,4,5	3
Johnson Creek	[illegible]	[illegible]	[illegible]	[illegible]	14W	1948	3,4	1
Miner Forks	[illegible]	7300	[illegible]	[illegible]	17W	[illegible]	3,4	1
Miner Lake	13D7	6720	[illegible]	[illegible]	[illegible]	[illegible]	3,4	1
Wise River	13D13	[illegible]	15	[illegible]	[illegible]	1948	3,4	1
JEFFERSON RIVER								
Picnic Grounds	12D6	6500	10	[illegible]	[illegible]	1941	2,3,4	4
Pipestone Pass	12D1	7200	[illegible]	[illegible]	[illegible]	1938	1,2,3,4,5	1
MADISON RIVER								
Hebgen Dam	11E5	[illegible]	22	11S	3E	1934	1,2,3,4,5	3
Jack Creek	11D5	7600	13	6S	1E	1961	3,4	1
Norris Basin	11E2	7500	44°44'		110°42'	1937	1,2,3,4,5	6
North Meadow	11D3	7500	23	3S	3W	1961	3,4	1
West Yellowstone	11E7	6700	34	13S	5E	1934	1,2,3,4,5	3
GALLATIN RIVER								
[illegible] Slide	10D4	8100	14	5S	6E	1935	2,3,4,5	1
Hood Meadow	10D3	6600	22	4S	6E	1935	2,3,4,5	1
[illegible] World	10D1	6700	24	3S	6E	1939	2,3,4	1
Twenty-One Mile	11E6	7150	1	11S	5E	1934	1,2,3,4,5	3
MISSOURI RIVER MAIN STEM								
Chessman Reservoir	12C5	6200	2	8N	5W	1936	1,2,3,4,5	3
Crystal Lake	9C1	6100	19	13N	18E	1941	3,4	1
Grasshopper	10C2	7000	19	9N	8E	1938	3,4	1
Kings Hill	10C1	7450	35	13N	7E	1934	3,4,5	3
Rocky Boy	9A2	5200	13	29N	16E	1941	3,4	7
Stemple Pass	12C1	6900	16	13N	7W	1934	3,4,5	3
Ten Mile Creek L.	12C2	6250	13	8N	6W	1935	1,2,3,4,5	3
Ten Mile Creek M.	12C3	6800	13	8N	6W	1934	1,2,3,4,5	3
Ten Mile Creek, U.	12C4	8000	19	8N	5W	1935	1,2,3,4,5	3
SUN-TETON-MARIAS RIVERS								
Benchmark	12B8	5500	9	20N	10W	1948	3,4	1
Cabin Creek	12B6	5400	33	23N	10W	1947	3,4	1
Five-Bull	12B4	5600	36	20N	10W	1948	3,4	1
Freight Creek	12A1	6000	13	26N	10W	1948	3,4	1
Gates Park	12B3	5300	31	24N	10W	1949	3,4	1
Goat Mountain	12B7	7000	20	22N	10W	1934	3,4	1
Waldron Creek	12B2	5600	16	21N	9W	1948	3,4	1
West Fork	12B1	6000	6	21N	9W	1948	3,4	1
Wrong Creek	[illegible]	5700	32	21N	10W	1948	3,4	1
Wrong Ridge	[illegible]	6800	17	21N	10W	1948	3,4	1
MILK RIVER (Canada)								
Cross Bay	10AA2	3450	49°-19'		110°-14'-15"	1953	4	9
Cypress Park	9AA1	4000	49°-39'		[illegible]-31'-44"	1953	4	9
Elkwater	10AA1	4100	49°-40'		110°-19'-16"	1953	4	9
Val Marie	7AA1	2700	49°-19'		107°-43'-44"	1953	4	9
UPPER YELLOWSTONE RIVER								
Bald Ridge	10D5	7500	11	4S	10E	1961	3,4,5	1
Camp Senia	9D1	7800	2	8S	18E	1937	3,4,5	1
Canyon	10E3	7750	44°-44'		110°-30'	1938	1,2,3,4,5	6
Cooke City	10D7	7400	35	9S	14E	1937	1,2,3,4,5	6
Crevice Mt.	[illegible]	8400	22	9S	9E	1935	3,4	[illegible]
Gertrude Lake	9D3	9250	10	8S	18E	1961	3,4,5	1
Grizzly Peak	9D5	8400	26	7S	19E	1961	3,4,5	1
Independence	[illegible]	8000	22	7S	12E	1960	3,4,5	1
Lake Camp	10E4	7750	44°-34'		110°-24'	1936	1,2,3,4,5	[illegible]
Lodgepole	9E1	8200	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4,5	1,2
Lupine	10E1	7300	[illegible]		110°-37'	1938	1,2,3,4,5	6
Monument Peak	10D12	9000	22	7S	12E	1961	3,4,5	1
Porcupine R.S.	[illegible]	6500	19	4S	10E	1938	3,4,5	1
Timberline Creek	9D4	8850	19	8S	19E	1961	3,4,5	1
[illegible]	10D10	[illegible]	36	2S	6E	1960	3,4,5	1
West Rosebud	9D2	7300	10	7S	16E	1960	1,2,3,4,5	6

MISSOURI RIVER BASIN (Continued) (WYOMING)

Drainage Basin & Course Name	Number	Elev.	Location Sec. Lat.	Twp.	Range Long.	Record Began	Measuring Dates	Meas. By
WIND RIVER								
Big Warm	9F12	[illegible]	[illegible]	42N	[illegible]	1953	2,3,4,5	1
Burroughs Creek	9F6	[illegible]	15	43N	[illegible]	1948	2,3,4,5	1
Dinwoody	9F10	[illegible]	9	38N	[illegible]	1948	2,3,4,5	1,5
Dinwoody Glaciers	9F17	[illegible]	3	38N	[illegible]	[illegible]	2,3,4	1
Dry Creek	9F9	[illegible]	36	[illegible]	[illegible]	1948	2,3,4,5	1,5
Dubois	[illegible]	[illegible]	27	[illegible]	[illegible]	[illegible]	2,3,4,5	1
Geyser Creek	9F7	[illegible]	12	41N	[illegible]	1948	2,3,4,5	1
Little Warm	[illegible]	[illegible]	[illegible]	41N	[illegible]	1948	2,3,4,5	1
Sheridan [illegible] #2	9F14	[illegible]	3	[illegible]	[illegible]	1955	2,3,4,5	1
T-Cross Ranch	[illegible]	[illegible]	1	[illegible]	[illegible]	[illegible]	2,3,4,5	1
Togwotee Pass	[illegible]	[illegible]	29	[illegible]	111W	[illegible]	2,3,4,5	11
POPO AGIE RIVER								
Blue Ridge	[illegible]	[illegible]	23	[illegible]	[illegible]	[illegible]	2,3,4,5	1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4	1
Hobbs Park	[illegible]	[illegible]	22	[illegible]	[illegible]	[illegible]	2,3,4,5	1,5
[illegible] Park	[illegible]	[illegible]	23	[illegible]	[illegible]	[illegible]	2,3,4,5	1,5
Sawmill Divide	[illegible]	[illegible]	3	[illegible]	[illegible]	[illegible]	2,3,4,5	1
South Pass	[illegible]	[illegible]	13	[illegible]	[illegible]	[illegible]	2,3,4,5	1
St. Lawrence R.S.	9F11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4,5	1,5
Trail Creek	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4,5	1,5
Twenty Lakes	[illegible]	[illegible]	2	[illegible]	[illegible]	[illegible]	2,3,4	1
BIG HORN RIVER								
Five Springs Falls	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4,5	1
Kirwin	[illegible]	[illegible]	13	[illegible]	[illegible]	[illegible]	2,3,4	1
Medicine Wheel	[illegible]	[illegible]	24	[illegible]	[illegible]	[illegible]	2,3,4,5	1
[illegible] Creek	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4,5	1
Wind River #[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4,5	1
Timber Creek #[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4,5	1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4	1
SHOSHONE RIVER								
Carter Mt.	[illegible]	[illegible]	15	[illegible]	[illegible]	1957	1,2,3,4	1
East Entrance	[illegible]	[illegible]	17	[illegible]	[illegible]	1948	1,2,3,4,5	6
[illegible]	[illegible]	9200	12	[illegible]	[illegible]	[illegible]	2,3,4	1
Sylvan Pass	[illegible]	7100	12	[illegible]	[illegible]	1936	1,2,3,4,5	6
Younts Peak	[illegible]	[illegible]	28	[illegible]	[illegible]	[illegible]	2,3,4	[illegible]
NOWOOD CREEK								
Cold Springs Camp	[illegible]	[illegible]	1	[illegible]	[illegible]	1956	2,3,4,5	1
Medicine Lodge Lakes	[illegible]	[illegible]	7	[illegible]	[illegible]	1956	2,3,4,5	1
Onion Gulch	[illegible]	[illegible]	31	[illegible]	[illegible]	1956	2,3,4,5	1
Tensleep Lake	[illegible]	[illegible]	31	[illegible]	[illegible]	1956	2,3,4,5	1
Tyrell R.S.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1956	2,3,4,5	1
SHELL CREEK								
Bald Mountain	[illegible]	[illegible]	33	[illegible]	[illegible]	1956	2,3,4,5	1
Granite Pass	7E17	[illegible]	[illegible]	[illegible]	[illegible]	1956	2,3,4,5	1
Ranger Creek	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1955	2,3,4,5	1
Shell Creek	[illegible]	[illegible]	12	[illegible]	[illegible]	[illegible]	2,3,4,5	1
TONGUE RIVER								
Beaver Tongue Div.	[illegible]	[illegible]	12	[illegible]	[illegible]	1956	2,3,4,5	1
Big Goose #[illegible]	[illegible]	[illegible]	6	[illegible]	[illegible]	1955	2,3,4,5	1
Bone Springs Div.	[illegible]	[illegible]	32	[illegible]	[illegible]	1956	2,3,4,5	1
Burgess R.S. #[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1955	2,3,4,5	1
Dome Lake #[illegible]	[illegible]	[illegible]	11	[illegible]	[illegible]	[illegible]	2,3,4,5	1
[illegible] Creek	[illegible]	[illegible]	32	[illegible]	[illegible]	1956	2,3,4,5	1
Sibley Lake	7E11	[illegible]	1	[illegible]	[illegible]	1956	2,3,4,5	1
Sucker Creek	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1956	2,3,4,5	1
Steamboat Point	[illegible]	[illegible]	32	[illegible]	[illegible]	[illegible]	2,3,4,5	1
[illegible] R.S.	[illegible]	[illegible]	3	[illegible]	[illegible]	1956	2,3,4,5	1
[illegible] Pass	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4,5	1
POWDER RIVER								
Bear Trap	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	2,3,4,5	1
Canyon Creek	[illegible]	[illegible]	16	[illegible]	[illegible]	[illegible]	2,3,4,5	1
Cloud Peak	[illegible]	[illegible]	15	51N	[illegible]	[illegible]	2,3,4	1
Muddy Creek	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4,5	1
[illegible] Pass	[illegible]	[illegible]	11	[illegible]	[illegible]	[illegible]	2,3,4,5	1
Soldier Park	[illegible]	[illegible]	[illegible]	51N	[illegible]	[illegible]	2,3,4,5	1
Sour Dough	[illegible]	[illegible]	17	[illegible]	[illegible]	[illegible]	2,3,4,5	1
Tensleep R.S.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2,3,4,5	1

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a. Numerals 1,2,3,4 and 5 refer to January 1, February 1, March 1, April 1 and May 1.

b. Numerals refer to Agency that [illegible] the snow survey as follows:

1. Soil Conservation Service	7. Montana Experimental Station
2. U. S. Forest Service	8. Montana State Forestry Dept.
3. U. S. Geological Survey	9. Dominion Water & Power Bureau
4. Montana Power Company	10. U. S. Fish and Wildlife Service
5. U. S. Indian Service	11. U. S. Bureau of Reclamation
6. National Park Service	

M - Soil Moisture
A - Aerial Marker

S,M-11, [illegible] - (1961)

AVAILABLE SOIL MOISTURE
as of
February 1, 1962

Drainage Basin and Station	Station No.	Elev.	Soil Profile in Inches Depth	Cap.	Date	Soil Moisture Content in Inches About 2/1/62 1962	1961	1960	Avg.
GALLATIN									
College Site	11D2M	4856	54	14.5	2/2	11.2	7.1	10.6	7.9
MADISON									
Red Bluff	11D4M	4900	40	4.7	2/4	2.8	1.2	-	-
SHIELDS									
Battle Ridge	10D11M	6020	48	15.4	2/2	13.7	10.7	-	-
Shields River	10C4M	5850	48	20.8	2/2	12.8	10.8	-	-
FLATHEAD									
Desert Mountain	13A2M	5600	54	8.4	1/29	6.5	6.1	8.4	7.0
Marias Pass	13A5M	5250	54	6.5	2/1	5.3	4.3	5.6	4.9
Spotted Bear R.S.	13B15M	3700	28	6.2	1/31	6.1	5.1	6.3	5.6
Trout Lake	13A12M	3600	54	12.7	1/30	12.8	12.6	12.3	12.2

AVAILABLE SOIL MOISTURE
as of
October 1, 1961

						1961	1960	1959	Avg.
GALLATIN									
College Site	11D2M	4856	54	14.5	9/29	9.1	5.8	8.6	5.8
MADISON									
Red Bluff	11D4M	4900	40	4.7	9/22	3.2	-	-	-
SHIELDS									
Battle Ridge	10D11M	6020	48	15.4	9/30	9.3	10.6	-	-
Shields River	10C4M	5850	48	20.8	9/30	8.7	11.5	-	-
FLATHEAD									
Desert Mountain	13A2M	5600	54	8.4	10/5	4.9	4.5	7.2	5.8
Marias Pass	13A5M	5250	54	6.5	9/26	3.6	2.8	4.9	3.8
Spotted Bear R.S.	13B15M	3700	28	6.2	10/5	4.4	0.9	5.2	3.1
Trout Lake	13A12M	3600	54	12.7	10/5	7.8	6.9	9.8	7.7

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1962

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
						WATER CONTENT	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE
COLUMBIA RIVER BASIN							
KOOTENAI RIVER							
Can 10	Fernie	3500	2/1	23	6.3	5.5	7.3
Can 12A	Field	4200	1/30	24	5.2	7.6	4.5
Can 43	Gray Creek	5100	1/28	51	12.6	12.8	12.5*
Can 33	Kicking Horse	5400	1/29	47	11.8	10.3	10.9*
Can 32	Marble Canyon	5000	1/31	47	11.7	8.5	11.1
Can 10A	New Fernie	4100	2/1	43	11.8	9.1	11.1*
Can 8A	Sinclair Pass	4500	1/30	19	3.9	4.3	4.7*
Can 20A	Sullivan Mine	5100	1/30	36	9.7	9.4	9.6*
FLATHEAD RIVER							
13B14A	Basin Creek	5000	1/29	35	8.8	4.2	7.1*
13A2M	Desert Mountain	5600	1/29	40	12.0	6.8	10.8*
13B13A	Holbrook	4530	1/30	39	10.8	4.3	7.5*
13A5M	Marias Pass	5250	1/31	42	12.8	8.8	13.0
13A13	Quintonkon	3800	2/1	40	13.4	-	11.0*
13B2	Spotted Bear Mt.	7000	1/31	43	13.2	8.4	11.0*
13A12M	Trout Lake	3600	1/30	40	12.2	5.4	11.3*
13B11	Twin Creeks	3580	1/30	37	10.8	6.8	8.8*
CLARK FORK RIVER							
13B10	Coyote Hill	4200	1/30	37	11.4	5.0	8.0*
15C2	Fish Lake Airstrip	5000	1/29	86	29.1	17.8	26.6*
13C4	Intergaard	6450	2/1	26	6.2	4.0	4.9*
15B2	Lookout	5250	1/30	79	28.8	19.8	25.9*
13C8	Lubrecht Forest #6	4040					
13C5	Southern Cross	6500	2/1	23	5.6	2.5	3.8*
13C7	Storm Lake	7780	1/30	36	9.9	7.0	8.8*
13C6	Stuart Mill	6500	2/1	21	5.2	3.3	4.3*
14B1	TV Mountain	6800	1/31	51	16.1	6.1	11.2*
BITTERROOT RIVER							
13D2	Gibbons Pass	7100	1/31	52	15.6	11.4	16.4*
13D16	Moose Creek	6200	1/29	41	11.6	7.6	11.9*

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1962

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
						WATER CONTENT	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE
UPPER YELLOWSTONE RIVER							
10E3	Canyon	7750	1/28	46	11.1	6.2	10.4*
10D7	Cooke City	7400	1/29	31	7.0	4.0	6.0*
9D5	Grizzly Peak	8400	1/31	62	19.9	-	-
10E4	Lake Camp	7850	1/28	36	7.8	3.7	7.7*
9E1	Lodgepole	8200	1/31	31	7.2	3.8	8.3*
10E1	Lupine Creek	7300	1/29	38	10.4	4.9	7.1*
10E7	Thumb Divide	7900	1/27	59	17.6	8.4	15.9*
WIND RIVER							
9F12	Big Warm	8800	1/24	34	7.9	4.2	7.6*
9F4	Burroughs Creek	8800	1/26	39	11.0	5.1	11.7*
9F10	Dinwoodie	10000	1/27	41	10.9	4.7	8.4*
9F17A	Dinwoodie Glaciers	10500	1/28	36	9.0A	3.0E	-
9F9	Dry Creek	9500	1/27	26	5.9	2.5	4.3*
9F6	Du Noir	8750	1/24	32	7.6	2.7	6.1*
9F7	Geyser Creek	8500	1/25	28	6.8	2.2	5.7*
9F8	Little Warm	9500	1/25	54	14.4	7.2	11.7*
9F14	Sheridan R.S. #2	7500	1/24	29	6.4	2.7	5.7*
9F3	T-Cross Ranch	8000	1/26	25	5.3	2.4	5.5
10F9M	Togwotee Pass	9600	1/29	66	21.6	15.3	20.6
POPO AGIE RIVER							
8G2	Blue Ridge	9500	1/21	44	8.2	4.1	8.6*
8G5	Bruce's Camp	6500	1/21	22	3.3	1.6	1.9*
9G3	Hobbs Park	10000	1/29	46	13.1	8.0	12.8*
9G4	Mosquito Park	9500	1/29	28	6.8	2.4	5.6*
8G1	Sawmill Glade	8500	1/20	33	5.7	3.3	5.5*
8G3M	South Pass	9000	1/20	49	10.6	4.2	10.3
9F11	St. Lawrence R.S.	9000	1/28	25	6.2	2.6	4.7*
9G2	Trout Creek	8400	1/29	24	5.5	2.1	4.5*
9G7A	Twenty Lakes	10500	1/28	36	9.0A	2.0E	-
BIG HORN RIVER							
7E31	Five-Springs Falls	7500	1/31	19	4.2	3.2	4.1*
9F19A	Kirwin	11000	1/31	32	7.5A	2.0E	-
7E30	Medicine Wheel	9000	1/25	42	11.7	8.5	10.1*
8F1	Owl Creek	8700	1/31	21	4.7	4.3	4.5*
9E3	Timber Creek	8800	1/29	17	4.2	1.7	2.4*
9F15	Wood River #2	8000	1/30	22	6.1	2.7	2.9*

A - Aerial reading; water content estimated.

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1962

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD WATER CONTENT	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE
SHOSHONE RIVER							
9E4M	Carter Mountain	7800	1/28	22	5.3	-	3.1*
10E6	East Entrance	7000	1/31	33	7.7	5.4	8.1*
10E5	Sylvan Pass	7100	1/31	39	9.8	5.7	10.2*
9F18A	Younts Peak	8500	N.R.			4.0E	
NOWOOD CREEK							
7E25	Cold Springs Camp	8700	1/24	29	7.4	3.5	4.8*
7E24M	Medicine Lodge Lakes	9500	1/24	42	11.6	4.8	7.3*
7E27M	Onion Gulch	8100	1/26	40	10.2	4.3	6.1*
7E26	West Tensleep Lake	9075	1/31	45	12.5A	4.0E	7.1*
7E35	Tyrell R.S.	8300	1/25	33	8.2	4.1	4.5*
SHELL CREEK							
7E21M	Bald Mountain	9600	1/25	63	19.8	11.4	12.8*
7E17	Granite Pass	8950	1/26	51	14.3	8.6	10.5*
7E4	Ranger Creek	8800	1/25	34	8.4	4.3	6.0*
7E23A	Shell Creek	9600	1/31	54	15.5A	6.0E	9.1*
TONGUE RIVER							
7E20	Beaver-Tongue	9200	1/24	57	16.4	10.9	12.0*
7E32M	Big Goose #2	7700	1/29	30	8.2	2.9	4.8*
7E18A	Bone Springs Divide	9200	1/31	53	15.5A	4.5E	9.6*
7E33	Burgess R.S. #2	7900	1/25	27	6.3	3.5	4.9*
7E34A	Dome Lake #2	8800	1/31	35	8.5A	3.0E	5.7*
7E14A	Gloom Creek	9300	1/31	47	13.0A	4.5E	7.5*
7E11	Sibley Lake	8000	1/26	39	9.9	4.9	6.4*
7E10	Steam Boat Point	7500	1/26	28	6.6	2.7	4.4*
7E12A	Sucker Creek	9000	1/31	41	11.0A	4.5E	7.0*
7E13	Wood Rock G.S.	8500	1/26	40	10.3	4.4	6.7*
POWDER RIVER							
7F1	Bear Trap	8000	1/26	39	10.1	4.1	-
7F2	Canyon Creek	7400	N.R.			5.9	-
7E36A	Clouds Peak	10000	1/31	42	11.0A	4.0E	-
6E2	Muddy Creek G.S.	7800	1/28	18	4.4	1.7	2.7*
7E8	Munkres Pass	9700	1/28	38	9.6	3.5	6.1*
7E5	Soldier Park	8700	1/27	24	5.5	1.8	3.6*
7E6	Sour Dough	8500	1/27	32	7.3	2.9	4.3*

A - Aerial reading; water content estimated.

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF FEBRUARY 1, 1962

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
						WATER CONTENT	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE
	MISSOURI RIVER BASIN						
BEAVERHEAD RIVER							
12E3	Camp Creek	6800	1/29	28	6.5	3.4	7.0
12E4	Irving Creek	7035	1/29	17	3.8	2.0	-
11E12	Kilgore	6200	1/28	33	8.1	3.9	7.2
12E5	Webber Creek	6700	1/29	15	3.0	2.2	-
JEFFERSON RIVER							
12C6	Picnic Grounds	6500	2/1	18	3.7	1.8	3.7*
12D1	Pipestone Pass	7200	1/29	22	4.8	2.8	3.2*
MADISON RIVER							
11E9	Big Springs	6500	1/29	56	17.5	8.8	14.5
11E5	Hebgen Dam	6550	1/30	35	8.9	5.7	8.6
11E10	Island Park	6315	1/29	49	13.2	7.0	11.3
10E2	Norris Basin	7500	1/29	34	8.4	4.7	7.1*
11E8	Valley View	6500	1/29	46	12.8	5.8	9.8*
11E7	West Yellowstone	6700	1/29	38	9.4	4.9	8.8
GALLATIN RIVER							
10D4	Devil's Slide	8100	2/3	55	18.8	9.2	11.9*
10D3	Hood Meadow	6600	2/3	28	7.9	4.3	5.1*
10D1	New World	6700	1/27	33	9.0	5.5	6.3*
11E6	Twenty-One Mile	7150	1/30	50	15.0	7.8	13.0
MISSOURI RIVER (Main Stem)							
12C5	Chessman Reservoir	6200				0.8	3.4
12C2	Tenmile, Lower	6250	2/2	21	5.1	2.9	5.1
12C3	Tenmile, Middle	6800	2/1	31	7.7	4.1	7.4
12C4	Tenmile, Upper	8000	2/1	34	9.6	4.7	9.4

NOTE: ALL AVERAGES BASED ON 1943-1957 (15 YEAR PERIOD). *ADJUSTED AVERAGE

RESERVOIR STORAGE
as of
January 31, 1962

BASIN	RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE - 1000 A. F. 1962	1961	1943-57 Average
COLUMBIA RIVER BASIN - MONTANA					
Flathead	Hungry Horse	3,428.0	2,488.0	3,416.0	2,620.0**
	Flathead Lake	1,791.0	1,200.0	1,008.0	991.3
	Camas 1/	45.2	25.7	22.5	23.6
	Mission Valley 2/	100.3	21.6	28.1	31.6
Clark Fork	Georgetown Lake	31.0	24.4	25.0	24.0
Bitterroot	Como	34.8	11.8	-	10.4
MISSOURI RIVER BASIN - MONTANA					
Beaverhead	Lima	84.0	16.1	9.6	32.8
Ruby	Ruby	38.8	18.6	16.3	25.8**
Madison	Hebgen Lake	345.0	106.8	125.8	223.3
	Ennis Lake	41.0	38.8	39.3	35.7
Gallatin	Middle Creek	8.0	2.2	-	3.4**
Missouri	Canyon Ferry	2,043.0	1,288.0	1,474.0	1,612.0**
	Hauser & Helena	61.9	49.9	64.2	49.3
	Lake Helena	10.4	6.4	11.3	7.1**
	Holter Lake	81.9	52.2	40.1	62.1
	Ackley Lake	5.8	-	4.2	4.2
	Durand	7.0	1.2	3.6	4.6
	Martinsdale	23.1	1.2	3.6	9.5
	Fort Peck	14,900.0	8,484.0	6,898.0	6,517.0
Sun-Teton	Gibson	105.0	36.2	34.3	59.7
	Willow Creek	32.3	10.4	14.4	18.7
	Pishkun	32.0	17.2	17.0	18.9
Marias	Lower Two Medicine	16.6	0	0	0
	Four Horns	19.2	14.0	14.7	8.4
	Tiber	1,316.0	624.6	625.5	629.5**
	Swift	30.0	15.1	12.6	20.9
	Lake Francis	112.0	74.1	77.8	94.5
Milk	Fresno	127.2	13.5	27.5	64.0
	Nelson	66.8	15.9	41.8	35.6
	Lake Sherburne	66.1	14.9	-	18.1
Yellowstone	Mystic Lake	20.8	10.0	11.8	11.3
	Tongue River	68.0	40.9	9.8	7.4
	Cooney	27.5	15.0	-	9.1

1/ Sum of four small reservoirs on west side of Flathead Lake.
2/ Sum of eight small reservoirs in Mission Valley not including Jocko Lake.
** Average for period of record.

RESERVOIR STORAGE
as of
January 31, 1962

BASIN	RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE - 1000 A. F.		
			1962	1961	1943-57 Average
MISSOURI RIVER BASIN - WYOMING					
Wind	Bull Lake	152.0	88.7	57.7	70.7
	Pilot Butte	31.6	10.6	10.4	11.2
	Boysen	560.0AC	162.3	88.7	242.8**
Owl Creek	Anchor	16.5	0.0	-	-
Shoshone	Buffalo Bill	440.0	180.3	127.0	244.6
Belle Fourche	Key Hole	190.0AC	0.0	3.2	6.6**
MISSOURI RIVER BASIN - NORTH DAKOTA					
Missouri	Garrison	18,100.0AC	3,597.9	5,408.1	-
Heart	E.A. Patterson	5.6AC	2.0	3.5	3.8**
	Lake Tschida	68.7AC	34.3	48.9	50.6**
James	Jamestown	20.0AC	11.4	15.7	-
MISSOURI RIVER BASIN - SOUTH DAKOTA					
Missouri	Oahe	17,000.0AC	2,842.0	1,043.0T	-
	Fort Randall	3,800.0AC	2,490.8	2,386.7	1,597.5**
	Gavins Point	320.0AC	245.1	242.0	-
Grand	Shadehill	84.0AC	28.2	51.1	75.0**
Cheyenne	Angostura	90.0AC	4.7	3.4	42.2**
	Deerfield	15.1AC	3.5	2.3	11.3**
	Pactola	55.0AC	3.1	15.8	-
Belle Fourche	Belle Fourche	185.2AC	21.3	22.5	92.0

**Average for period of record.
AC Active Capacity, USBR, Billings.
T Total storage.

Agencies Cooperating in Collecting Data Contained in this Bulletin

U. S. Forest Service
  Region I, Missoula, Montana

U. S. Geological Survey
  Helena, Montana

U. S. Army Corps of Engineers
  Portland, Oregon
  Seattle, Washington
  Omaha, Nebraska
  Riverdale, N. D.

U. S. Indian Irrigation Service
  St. Ignatius, Montana

U. S. Weather Bureau
  Helena, Montana

U. S. Fish & Wildlife Service
  Red Rock Lakes Refuge
  Monida, Montana

U. S. Bureau of Reclamation
  Billings, Montana
  Boise, Idaho

Montana Power Company
  Butte, Montana

Agricultural Experiment Station
  North Montana Branch Station
  Havre, Montana

Montana State Highway Dept.
  East Glacier, Montana

National Park Service
  Yellowstone National Park
  Glacier National Park

Montana Experiment Station
  Montana State College
  Bozeman, Montana

Bonneville Power Administration
  Portland, Oregon

Montana State School of Forestry
  Montana State University
  Missoula, Montana

Soil Conservation Service
  Montana, Wyoming, Idaho

Soil Conservation Districts
  Montana Counties

Johnson Flying Service, Inc.
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